

Twisted wire pair (TWP) for on-stave data transmission

- Most recent tests with 36 AWG shielded TWP with PEEK insulation
- With signal conditioning and encoded output, **reach payload bandwidths > 5 Gbps, sufficient for inner layers**
- Plan to test finer gauge conductors, drain wire, other options to minimize mass while retaining bandwidth
 - New tests in time for Upgrade Week in November
 - **How much should we reserve for future mockups?**
- Baseline design: ~ 1 meter TWP on-stave, connecting directly to ~ 7 meter twin-ax at end-of stave that terminates at opto-boxes
 - Clock and command could be TWP all the way from opto-boxes (160 MHz vs >5 GHz)

TWP available

Multi-stranded
Custom TWP, shielded 0.021%

Multi-stranded
Custom TWP, AWG36

TWP, AWG36 0.0086%

- 36 AWG multi-strand, shielded: none available for mockups
- 36 AWG multi-strand, unshielded: lots available for mockups
- 36 AWG solid core, unshielded: less material, could send ~1m